SECTION 600

HIGHWAY GUARD, FENCES AND WALLS

SECTION 601

HIGHWAY GUARD

DESCRIPTION

601.20 General.

This work shall consist of the construction of guard rail in accordance with these specifications and in close conformity with the lines and grades shown on the plans or established by the Engineer.

The type of guard rail is designated as follows:

Highway Guard Steel Beam Type SS.

The construction of guard rail shall include the assembly and erection of all components parts and materials complete at the locations shown on the plans or as directed.

MATERIALS

601.40 General.

Materials shall meet the requirements specified in the following Subsection of Division III, Materials:

Steel Beam Highway Guard Type SS	M8.07.0

CONSTRUCTION METHODS

601.60 Posts.

Posts shall be set plumb, in hand or mechanically dug holes, or driven, then backfilled with acceptable material placed in layers and thoroughly compacted.

If driven the posts shall be provided with suitable driving caps and equipment used which will prevent battering or injury of posts. Posts damaged or distorted as a result of driving shall be removed and replaced with approved posts.

Guard posts to be set in areas of proposed bituminous concrete surfacing shall be erected prior to laying the surrounding finished surface unless otherwise permitted by the Engineer.

601.61 Spacing of Posts.

Posts shall be spaced as shown on the plans.

601.62 Steel Beam Rail.

The rail shall be erected so as to form a smooth continuous rail conforming to the required line and grade. The rail element shall be spliced by lapping in the direction of the traffic or by other approved methods. The holes in the rail element nearer the posts shall be slotted to facilitate erection and to permit expansion. The rail shall make full contact at each splice.

All bolts, except where otherwise required at expansion joints shall be drawn tight. Bolts through expansion joints shall be drawn up as tightly as possible without being too tight to prevent the rail elements from sliding past one another longitudinally.

COMPENSATION

601.80 Method of Measurement.

Steel beam highway guard will be measured along the top edge of the rail element from center to center of end posts.

The unit of measurement of individual posts will be each post set complete in place.

Single faced steel beam terminal sections and double faced steel beam terminal sections will each be considered as a unit.

Buried ends will be measured as a unit for installation of the 11.46 meters of highway guard as directed.

Leading and Trailing ends will be measured as units for the 7.64 meters of highway guard, hardware and necessary work to complete installation as directed.

601.81 Basis of Payment.

Highway guard will be paid for at the contract unit price per meter.

Single faced and double faced steel beam terminal sections will be paid for at the contract unit price each under the items for Steel Beam Terminal Section (Single Faced) and Steel Beam Terminal Section (Double Faced) respectively.

Buried ends will be paid for at the contract unit price each.

Leading and trailing ends will be paid for at the contract unit price each.

Where posts occur in waterway aprons the cutting of holes and replacement of aprons shall be done without additional compensation.

Rock excavation, if necessary, will be paid for at the contract unit price per cubic meter under the item for Class B Rock Excavation.

601.82 Payment Items.

602.	Individual Post	Each
620.1	St. Bm. Hwy. Guard - Type SS (Single Faced)	Meter
620.3	St. Bm. Hwy. Guard - Type SS (Single Faced) (Curved)	Meter
620.4	St. Bm. Hwy. Guard - Type SS Buried End (Single Faced)	Each
621.1	St. Bm. Hwy. Guard - Type SS (Double Faced)	Meter
621.3	St. Bm. Hwy. Guard - Type SS (Double Faced) (Curved)	Meter
621.4	St. Bm. Hwy. Guard - Type SS Buried End (Double Faced)	Each
622.1	St. Bm. Hwy. Guard - Type SS (Single Faced/Wood Posts)	Meter
622.3	St. Bm. Hwy. Guard - Type SS (Single Faced/Wood Posts) (Curved)	Meter
622.5	St. Bm. Hwy. Guard - Type SS Buried End (Single Faced/Wood Posts)	Each
624.1	St. Thrie Bm. Hwy. Guard - Type SS (Single Faced)	Meter
624.3	St. Thrie Bm. Hwy. Guard - Type SS (Single Faced) (Curved)	Meter
624.4	St. Thrie Bm. Hwy. Guard - Type SS Buried End (Single Faced)	Each
625.1	St. Thrie Bm. Hwy. Guard - Type SS (Double Faced)	Meter
625.3	St. Thrie Bm. Hwy. Guard - Type SS (Double Faced) (Curved)	Meter
625.4	St. Thrie Bm. Hwy. Guard - Type SS Buried End (Double Faced)	Each
626.1	St. Bm. Hwy. Guard - Type SS (Single Faced/SP Base Anch.)	Meter
626.2	St. Bm. Hwy. Guard - Type SS (Double Faced/SP Base Anch.)	Meter
626.3	St. Thrie Bm. Hwy. Guard - Type SS (Single Faced/SP Base Anch.)	Meter
626.4	St. Thrie Bm. Hwy. Guard - Type SS (Double Faced/SP Base Anch.)	Meter
627.1	St. Bm. Terminal Section (Single Faced)	Each
627.2	St. Bm. Terminal Section (Double Faced)	Each
627.3	St. Thrie Bm. Terminal Section (Single Faced)	Each
627.4	St. Thrie Bm. Terminal Section (Double Faced)	Each
627.5	Special St. Bm. Terminal Section (Single Faced)	Each
628.1	Leading End for St. Bm. Hwy. Guard at Bridge	Each
628.2	Trailing End for St. Bm. Hwy. Guard at Bridge	Each

628.	Leading End for St. Thrie Bm. Hwy. Guard at Bridge	Each
628.4	Trailing End for St. Thrie Bm. Hwy. Guard at Bridge	Each
144.	Class B Rock Excavation	Cubic Meter

SECTION 628

PERMANENT IMPACT ATTENUATORS

DESCRIPTION

628.20 General.

This item shall consist of furnishing and installing impact attenuators in close conformance with the specifications of the manufacturer, and in close conformance with the locations, lines, and grades shown on the plans and/or designated in the Special Provisions.

MATERIALS

628.40 General.

All materials used in the foundation and anchorage of the impact attenuator shall meet the requirements specified in Division III, Materials.

The impact attenuator may be any impact attenuator which meets the requirements of ***National Cooperative Highway Research Program, Report 230*** and its subsequent revisions, and has been accepted by the Federal Highway Administration in the location intended. Impact attenuators which have not been accepted by the Federal Highway Administration, or which have been designated as approved for experimental use by the Federal Highway Administration shall be rejected by the Engineer. The manufacturer must provide evidence of the suitability and acceptance by the Federal Highway Administration of the impact attenuator.

The impact attenuator shall be designed to fit within reasonably close tolerance of the dimensions given in the plans or the Special Provisions for a given location. The manufacturer shall design the impact attenuator for the design speed given on the plans or other such speed designated in the Special Provisions. Copies of the design shall be given to the Engineer for inclusion in the contract record. A listing of the parts shall also be given to the Engineer for future maintenance operations.

CONSTRUCTION METHODS

628.60 General.

Excavation for attenuator foundations and anchorage shall be made to the required depth and to a width that will permit the installation and bracing of forms where necessary. All soft and unsuitable material shall be replaced with gravel borrow.

The impact attenuator shall be installed in accordance with the specifications and recommendations of the manufacturer. Copies of these specifications and recommendations shall be provided to the Engineer.

COMPENSATION

628.80 Method of Measurement.

Impact attenuators will be measured as a single unit, each in place. There will be a separate bid item for each location.

628.81 Basis of Payment.